

CLAIMS

1. Vehicle having a front and a rear and comprising:

- a passenger compartment (57) provided with seats (55) near the rear of the passenger compartment, and a storage area (53) located behind said seats,

5 - a vehicle structure (13) locally defining a roof panel (14) with a closeable opening (10) and a retractable roof (12), this roof comprising at least two rigid parts (1, 3, 5, 9) free to move with respect to said structure, namely a first front part and a second
10 rear part respectively,

- first displacement means (7, 37, 39) to which the roof parts are connected at least during part of their movement between an extended position reached by forward displacement in which these parts are substantially in
15 line one behind the other and cover the passenger compartment (57), and a folded position reached by a displacement towards the rear of the vehicle in which said parts are offset from each other and are retracted behind the seats, at least some of these roof parts (1,
20 3, 5) then being arranged in a first storage position,

characterized in that it also comprises second displacement elements (51, 80) into which at least said roof parts (1, 3, 5) engage when they are arranged in their said first storage position, to displace these roof
25 parts if necessary towards a second storage position different from the first position.

2. Vehicle according to claim 1, characterized in that the second displacement means (51, 80) are installed free
30 to move with respect to the vehicle structure (13) and

with respect to the first displacement means (7, 37, 39), the roof parts (1, 3, 5) arranged in the first storage position becoming free from the first displacement means while engaging the second displacement means so that they
5 can move from their first position to their second storage position.

3. Vehicle according to claim 1 or claim 2, characterized in that:

10 - the first and the second displacement means (7, 37, 39) comprise first and second slides (7, 51, 80) respectively,

- the rigid parts of the first roof part comprise several substantially flat panels (1, 3, 5) free to move
15 with respect to each other and arranged above the passenger compartment (57) when the roof is in the closed position, in front of a rear element (9) of the roof containing the rear window (90) of the vehicle and belonging to the said second part of the roof,

20 - and to fold away, said mobile roof panels (1, 3, 5) pass firstly into the first storage position and then into the second storage position, engaging firstly the first slides (7) and then the second slides (51, 80) which are mounted free to move on the structure (13) with
25 respect to the first slides (7) so as to displace the roof panels (1, 3, 5) between their said first and second storage positions.

4. Vehicle according to any one of the previous claims
30 characterized in that it also comprises selective means (200, 201, 205) to control the movement of the roof parts

concerned (1, 3, 5) between their first and second storage positions.

5. Vehicle according to claim 1, characterized in that:

5 - the roof parts comprise at least two rigid roof panels (1, 3; 3, 5), respectively a first front roof panel and a second central roof panel, the panels being fixed to each other by connecting means arranged such that the front panel is free to move between its extended
10 position reached by forward displacement in which the said panel is above the passenger compartment, in front of the central panel, and an open position reached by displacement towards the rear of the vehicle in which the front and central panels are superposed substantially
15 horizontally, the central panel possibly being moved by cooperation with the first displacement means (7, 37, 39) and at the same time as the front panel adjacent to it, between its extended position in which it is above the passenger compartment and the said first storage position
20 in which the front and central panels are retracted side by side into the storage space,

 - when roof panels are in the extended position, they are inserted one behind the other between the windshield (150) at the front that is fixed to the
25 vehicle structure (13) and a rear element (9) containing the rear window (90),

 - and in a second stored position, the front and central panels are preferably arranged either in the upper part of the said roof storage area (53), or in the
30 lower part in an area (61) left free in the bottom of the storage space.

6. Vehicle according to claim 5, characterized in that the rear element (9) comprising the rear window is free to move with respect to the vehicle structure (13) and cooperates with the first displacement elements (7) and with additional slides (17) during its movement to move out of the said storage area or to retract into it directly into an exclusively horizontal storage position.

7. Vehicle according to claim 1, characterized in that:

10 - the mobile roof parts comprise at least one front rigid panel (1, 3, 5) and a rear roof element (9) comprising the rear window (90), the panel being connected to the said first displacement elements (7, 37, 39), during its displacement between its extended position and first storage position, while the rear roof element (9) is connected to the said first displacement elements (7) while it moves between its extended and folded positions during which it extends substantially horizontally, such that the front panel is free to move between its extended position, reached by forward displacement and in which the said panel covers the passenger compartment, in front of the roof rear element, and its folded position reached by a displacement towards the rear of the vehicle and in which the front panel is firstly arranged in its first storage position, and is then tilted substantially horizontally, the roof rear element (9) being displaceable between its extended position in which it covers the passenger compartment (57) and its folded position in which it is tilted backwards directly substantially horizontally, in the upper part of the storage space (53) behind the seats and above the storage level of the front panel;

- and when stored horizontally, the front panel (1, 3, 5) is either arranged in the upper part of said roof storage area (53), or in the lower part in an area (61) left free in the bottom of the storage space, under the rear roof element in both cases.

8. Vehicle according to claim 7, characterized in that the rear roof element (9) is installed free to tilt with respect to the roof panel(s) to enable the passage of this (these) panel(s) when they change from their extended position to their folded position.

9. Method of storing an opening roof in a storage space (53) in an automobile vehicle, behind the seats (55) located in the rear part of the passenger compartment (57) of this vehicle, the opening roof comprising at least two rigid parts (1, 3, 5, 9), a first front part and a second rear part respectively, the method comprising the following steps:

- a) starting from a closed state of the roof in which the two parts of the roof cover the passenger compartment while being substantially aligned one behind the other, these roof parts can be displaced into the inside of the storage space (53), at least some of these parts being brought into a first substantially vertical storage position,

- b) and then the roof part(s) (1, 3, 5) concerned can be displaced again to a substantially horizontal position located either in the upper part or in the lower part of said roof storage area (53);

10. Method according to claim 9, characterized in that the roof parts comprise at least one mobile panel (1, 3, 5) and one mobile rear roof element (9) comprising the rear window (90), characterized in that:

- 5 - the roof panels (1, 3, 5) are moved as far as their second storage position, according to steps a) and b) in claim 9, this second storage position being located in the upper part of the said roof storage area (53);
- and furthermore, the rear roof element (9) is
- 10 moved to be stored in the said storage area, in the upper part of this storage area and in a directly and substantially horizontal position, immediately above the said roof panels.